



This is a digital copy of a book that was preserved for generations on library shelves before it was carefully scanned by Google as part of a project to make the world's books discoverable online.

It has survived long enough for the copyright to expire and the book to enter the public domain. A public domain book is one that was never subject to copyright or whose legal copyright term has expired. Whether a book is in the public domain may vary country to country. Public domain books are our gateways to the past, representing a wealth of history, culture and knowledge that's often difficult to discover.

Marks, notations and other marginalia present in the original volume will appear in this file - a reminder of this book's long journey from the publisher to a library and finally to you.

Usage guidelines

Google is proud to partner with libraries to digitize public domain materials and make them widely accessible. Public domain books belong to the public and we are merely their custodians. Nevertheless, this work is expensive, so in order to keep providing this resource, we have taken steps to prevent abuse by commercial parties, including placing technical restrictions on automated querying.

We also ask that you:

- + *Make non-commercial use of the files* We designed Google Book Search for use by individuals, and we request that you use these files for personal, non-commercial purposes.
- + *Refrain from automated querying* Do not send automated queries of any sort to Google's system: If you are conducting research on machine translation, optical character recognition or other areas where access to a large amount of text is helpful, please contact us. We encourage the use of public domain materials for these purposes and may be able to help.
- + *Maintain attribution* The Google "watermark" you see on each file is essential for informing people about this project and helping them find additional materials through Google Book Search. Please do not remove it.
- + *Keep it legal* Whatever your use, remember that you are responsible for ensuring that what you are doing is legal. Do not assume that just because we believe a book is in the public domain for users in the United States, that the work is also in the public domain for users in other countries. Whether a book is still in copyright varies from country to country, and we can't offer guidance on whether any specific use of any specific book is allowed. Please do not assume that a book's appearance in Google Book Search means it can be used in any manner anywhere in the world. Copyright infringement liability can be quite severe.

About Google Book Search

Google's mission is to organize the world's information and to make it universally accessible and useful. Google Book Search helps readers discover the world's books while helping authors and publishers reach new audiences. You can search through the full text of this book on the web at <http://books.google.com/>

UC-NRLF



QB 23 428

F

1569

C2M2

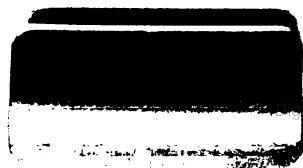
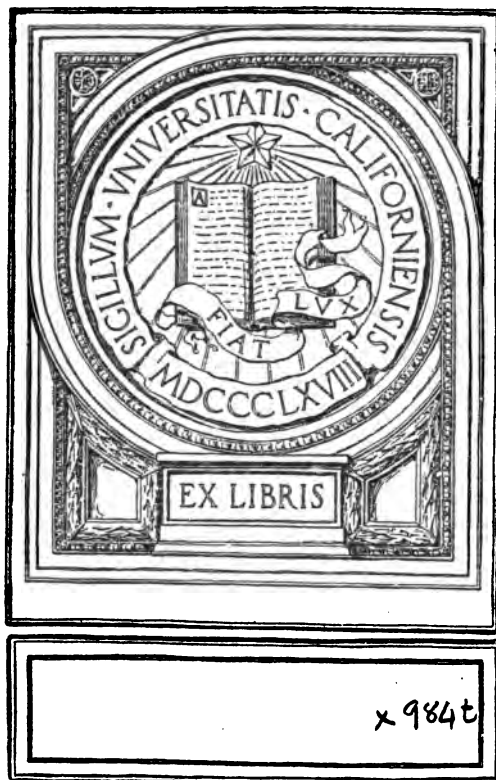
THE PANAMA CANAL



DUNCAN E. MCKINLAY

Digitized by Google

YC 09984



UNIV. OF
CALIFORNIA



DUNCAN E. McKINLAY
Who as a Member of Congress
Visited the Canal with the
Interstate Committee of
the House

TO VINU ABROGLAO



THE BIG FOUR OF THE PANAMA CANAL—President William McKinley, President William H. Taft, President Theodore Roosevelt and Colonel G. W. Goethals.

THE
PANAMA CANAL

DUNCAN E. MCKINLAY
"

UNIV. OF
CALIFORNIA

1912
WHITAKER & RAY-WIGGIN CO.
SAN FRANCISCO

F1569
.C2M2

COPYRIGHT BY
WHITAKER & RAY-WIGGIN CO.
1912

TO THE
ALBION

21
5

DEDICATED
TO
PRESIDENT WILLIAM HOWARD TAFT
BY THE AUTHOR.

271080

THE PANAMA CANAL

Of all subjects now occupying the attention of the world at large, and of importance not only to the State of California, but to all the territory west of the Rocky mountains and the islands and coasts of the Pacific Ocean, over which the American flag floats in sovereignty, none is paramount to the construction of the Panama Canal. The completion of the canal, while a world event, will, of course, be of peculiar significance and importance to that portion of the globe which borders on the Pacific Ocean. Countries, islands, coasts and States that for centuries have been isolated and far distant by water routes from the centers of population of Europe and Eastern United States, will be brought thousands of miles nearer to, and consequently, into more intimate social, industrial and business relations with the more highly organized governments of Europe and America.

In effect, the opening of the canal in 1915 to the commerce and trade of the world will be the realization of the dream of Columbus, who sailed across the Atlantic in 1492 to discover a shorter water route between Europe and Asia, and the fulfillment of the prophecy of Baron von Humboldt, who, between the years of 1799 and 1805, explored and surveyed a great portion of Central and South America. Humboldt, as a result of his explorations, predicted that within a reasonable period of time the two largest oceans of the world, the Atlantic and the Pacific, would be united by an

artificial water-way. This water-way, in his opinion, as expressed in a letter to his friend, the German poet Goethe, would be constructed by the little republic at the north, the United States, even then beginning to take an important place among the powers of the world.

In 1867, the energy and foresight of Seward acquired Alaska as an addition to American territory; and though Seward was laughed at and reviled as a foolish dreamer because of his purchase of a so-called iceberg and a fog-bank, nevertheless, that able statesman and diplomat pointed out to the people of the United States that some day the Pacific Ocean must become the world's greatest sea of commerce and trade, and that in that day Alaska would become one of the most valuable possessions of the American nation.

Those dreams and prophecies today are reaching their culmination and fulfillment in the opening of the Panama Canal, which will be celebrated in San Francisco,—yes, not only in San Francisco, but throughout all California and the sister States of the western coast—by the greatest international exposition ever conducted in the history of civilization. It will be a jubilee celebration in which all the States and principalities, nations and empires of the world will join in proud and thankful participation.

The History of the Canal

The idea of constructing an artificial water-way between the Caribbean Sea and the Gulf of Panama is as old as the discovery of America. Christopher Columbus, in early life, became converted to the idea that the world was round, and his studies led him to believe that by sailing in a direct course and sailing far enough, he could circumnavigate the



RUINS OF SANTA DOMINIE CHURCH, PANAMA.

globe and come back to the point from which he started, provided he could keep on that straight course. This belief naturally led him to the conclusion that by sailing westward from Spain, across the Atlantic, he could reach the coasts and the islands of Asia, which about that time were coming into great prominence as a desired market for the exchange of the wares of the producers and the manufacturers of Europe.

The only mistake made by Columbus was that he estimated the circumference of the world at about 8,000 miles, instead of over 24,000. Following his theory, Columbus embarked on his first and greatest voyage, and was successful, as we know, in discovering one of the islands of the West Indies. Columbus made four voyages in all to the newly discovered land, but it is doubtful as to whether or not he ever reached the mainland of America. One of his historians claims that on his last voyage he landed upon the coast of Honduras in Central America, and on the land now known as Venezuela, farther toward the south. This fact is of little importance to us at this time. We do know, however, that Columbus died in ignorance of the fact that he had discovered a great continent instead of some of the islands of the East Indies.

Immediately following the death of Columbus, his enterprising lieutenants, men like Vespucci, Ojeda, Balboa, and others of equal prominence, pushed their explorations farther westward, and Balboa, the boldest of the Spanish conquistadores, fitted out an expedition in Hispaniola, which island was then the base of operations of Spanish exploration and conquest, and sailed across the narrow sea to the coast of that portion of Central America we now call Panama.

Balboa established a rendezvous and base of supplies

and operations on the coast, and thence continued his journey inland, and on the 23rd of September, 1513, surmounted the heights of Darien, and from that eminence beheld the expansive stretches of watery waste known today as the Pacific Ocean. Balboa, continuing his explorations along the coasts of Panama, soon discovered that the land was not an island, but a continent, and becoming acquainted with the Indians who inhabited the country, he learned that there were two large bodies connected by a smaller body.

Balboa understood this statement to mean two large bodies of water connected by a smaller body of water, and therefore, naturally came to the conclusion that the Indians meant that the Pacific and the Atlantic Oceans were connected at some point or other along the isthmus by a natural water-way. What the Indians really meant was that there were two large bodies of land, to the north and south, and that these large bodies were connected by a long, narrow strip of land, part of which he was then exploring.

The Spaniards, naturally eager to extend their explorations into the great western ocean, began to search for the connecting water-way, and this quest was continued by them for nearly half a century; but they finally realized that the two great oceans of the world were separated by the impassable barrier of a continuous chain of mountainous land. The conquerer of Mexico, Cortez, after finishing the subjugation of the Indians of that part of the Spanish possessions, in 1526, was commanded by the King of Spain to proceed to the Isthmus and to assist in the search for the secret water-way.

Cortez answered the command of the King by saying that if he could not find the natural water-way he would proceed to make one. The brave old soldier, all his life

trained in the habit of surmounting great difficulties, declared that if there were obstacles and mountains, there were also men with brains and hands, and that if he could not find the water-way as commanded by the King, he would carry out the order by constructing a canal to connect the two oceans. And so, the idea of Columbus being to find a short water-route between Europe and the East Indies and coasts of Asia, by the completion of the Panama Canal, the United States is carrying out the original purpose of efforts of the discoverer of America and the orders of the King of Spain to Cortez, to make an artificial water-way which will shorten the lines of trade and commerce around the globe.

Between those early days and the present time every great maritime nation of the world has been interested in isthmian canal construction—Spain, Portugal, Holland, Germany, France, Great Britain and Italy have all, at one time or another in the intervening years, considered the advisability and feasibility of constructing a canal somewhere across the narrow territory between the Atlantic and Pacific.

Nine Different Routes Proposed

In all, nine routes have been surveyed or considered by some nation or some company. The first route to the north is known as the Tehuantepec route, which extends across Mexico from the Gulf of Mexico to the Pacific Ocean, a distance of nearly 200 miles, and over which route an English syndicate, headed by the Pearsons, is now operating a splendid railroad system. Captain Eads, one of the most prominent of American engineers of his time, advocated the building of a ship railway over this route, a railway

so constructed that cars could be let down into the water under the bottoms of ships, drawing them out of the water and across the land to the ocean on the other side.

Of course, this project might have been feasible with the smaller sized merchant ships of forty years ago, but it would hardly be so for transporting the gigantic freighters and passenger vessels that now traverse the seas.

The second route, towards the south, was called the Honduras Bay route, a route across the Republic of Honduras from Honduras Bay on the east to the Pacific.

The third route came to be known as the Nicaraguan route. For a long time this was the most popular of all the routes with the American Congress and the American people. The Nicaraguan route contemplated the utilization of the San Juan River on the east, between the Atlantic Coast and the Nicaraguan lakes, the Nicaraguan lakes as far as they extended westward, and thence through a canal across the dividing land from the upper lake to Nicaragua to the Pacific Ocean at Brita. The Nicaraguan route would be 377 miles shorter between San Francisco and New York than is the Panama route, along which the United States is now constructing a canal.

A fourth route was surveyed between the Chirique Lagoon on the eastern side to the Pacific Ocean.

The Isthmian Routes

Three routes across the Isthmus of Panama have been surveyed and considered—two besides the one which the United States is now utilizing; and farther south two possible canal routes have been surveyed across the territory of Colombia. The two southern routes would use the At-ranto River as a part of their course, and from that river



WATER FRONT, PANAMA.

across to the separating lands an excavation would be required.

Of these nine routes only three have been seriously contemplated by the engineers of the various governments and companies who have examined them. The three are the Tehuantepec, the Nicaraguan, and the Panama Canal route.

In the year 1800 all South American territory, with the exception of Brazil and a few colonies, was under the sovereignty of Spain, but about the year 1811 a series of revolutions broke out in various parts of Central and South America, having for their object the establishment of independent republics, and by 1823 all Central and South American countries had achieved independence. The province of Panama secured her independence in the year 1823, maintained that independence for a short time and then merged with the Republic of New Granda.

Panama remained a part of New Granda for several years, and then became a part of the New Granadan and Colombian confederacy, and continued to be a part of that confederacy through various vicissitudes of fortune and misfortune arising out of revolutions and war until November 3, 1903, when she seceded from the Colombian confederacy, hoisted her old flag, and resumed her ancient nationality.

In 1825, the South and Central American Republics, desiring to bring themselves into closer relations and sympathy so that trade and commerce and industry might be better developed, conceived the idea of holding a convention in the City of Panama, in the year 1826. The United States Government was invited to participate and take a prominent part in that convention, and in order to induce the President of the United States to send his representatives, the sub-

ject of canal construction across the Isthmus was to be one of the most prominent subjects considered.

Henry Clay, the Secretary of State of the United States at that time, was at first very eager to participate in the Pan-American convention, but was prevented by objections of the President from sending representatives to Panama. However, he sent a note of felicitation and encouragement and promised the support of the United States in any mutual project that would be to the advantage of all the countries, and particularly pledged that support to any feasible project of canal construction. This was the first official interest taken by the United States in the construction of an Isthmian Canal.

Like nearly all conventions, the one that was held in Panama in 1826 met and resolved a great deal and indulged in much oratory, but adjourned without accomplishing very much of practical value. However, a congress composed of representatives of several of the South and Central American States authorized the construction of an Isthmian Canal, and actually went so far as to enter into negotiations with a prominent engineer for the purpose of having one constructed, at some point to be decided upon later; but owing to revolutions and disorders soon after developing, plans for the project were for the time abandoned.

In 1837 the Congress of the United States authorized canal surveys to be made and a commission was appointed for the purpose of surveying and exploring the Central American country so that data might be secured that would give the American Congress information as to the practicability of the different routes that might be utilized. From that time on, until today, the subject of Panama Canal con-

struction has been almost constantly before the American Congress.

Of course, action in that body was more or less sporadic. The subject would be taken up from time to time when some pressing need for quicker and cheaper transportation to the Pacific Coast made itself apparent.

In 1846 the United States entered into war with Mexico, which engaged the energies of the nation for the time being and canal legislation was forgotten. After the war with Mexico came the discovery of gold in California, and the rush of the argonauts to the Golden State made it necessary that quicker and cheaper routes be established than those around Cape Horn by water, or the long trail over the plains and mountains to the Pacific Slope. A company was organized in New York which established a line of transportation by means of steamers from New York to Greytown, thence through the San Juan River to the lakes of Nicaragua, and thence by the stage lines to the Pacific Coast, where again vessels were taken for San Francisco Bay and for the coasts of Oregon and Puget Sound.

The Panama Railroad

About the same time a railway company was formed in the United States which secured a concession from the Republic of Colombia for the purpose of constructing the railway system across the Isthmus, which is now known as the Panama Railroad. This railroad was completed in 1856, and this addition to the means of transportation to the Pacific Coast again indefinitely postponed the necessity for canal construction.

In 1861 the United States drifted into the Civil War,

and once more the subject of canal construction was forgotten. After the close of the Civil War the transcontinental railroads, headed by the Union and Central Pacific Companies, pushed their lines westward until they reached the Pacific Coast, and as soon as the first railroad had crossed the continent active opposition to canal construction began to show itself in the American Congress.

The transcontinental railroads, fearing opposition in transportation, from that day until the Spooner bill was passed, June 28, 1902, maintained an active lobby at Washington, and whenever canal legislation was suggested, having for its object the construction of an Isthmian Canal at any point, this railroad opposition manifested itself in every form, and no doubt canal construction by the United States was postponed for many years by that agency.

However, in 1889, Congress authorized the incorporation of a company known as the Maritime Canal Company of the United States, and under that authority Hiram Hitchcock, of New York, as president, together with Warner Miller and several other capitalists, proceeded to raise about six million dollars, which was actually used in obtaining franchises and concessions from Costa Rica and Nicaragua for a canal route through these countries. Some money was also spent in doing necessary preliminary work.

The Maritime Canal Company was a favorite in the United States for a great many years, principally because it was championed by Senator J. T. Morgan, of Alabama. Senator Morgan made this the dearest project of his later life, and no doubt his last years of public service were embittered by his failure to secure Government co-operation for the building of the canal through Nicaraguan territory.



PRESIDENT AMADOR'S RESIDENCE, PANAMA.

The French Company

In the meantime Count Ferdinand de Lesseps, the brilliant and successful French engineer, having completed the Suez Canal, turned his attention to the Isthmian country. After a thorough investigation of all the possible routes, through a series of negotiations, he succeeded in securing a franchise from the Republic of Colombia, giving him authority to organize a French company and the right to construct a canal between the little city of Aspinwall (now known as Colon) on the eastern side, and the City of Panama on the Western side.

So great was the popularity of de Lesseps that he had no difficulty in forming a strong company in France. The stocks offered to the French public were subscribed for rapidly. The French are a frugal people, and even the poorest of the French peasants and working men have always a little hoard of savings. The French people had such confidence in de Lesseps' ability to complete successfully his great American enterprise that the first issue of his stocks were taken almost at par.

De Lesseps' Plan

De Lesseps' plan contemplated the building of a sea-level canal, 42 miles in length, from shore to shore, 100 feet wide and 28 feet deep. His authority from the Colombian Government amounted to merely a right to excavate the canal, the Colombian Government retaining jurisdiction over the soil and the people. The estimate of the cost of the type of canal proposed was fixed by the French company at \$120,000,000. The work of construction was inaugurated on February 1, 1881, with ceremony by the

officers of the French company, and was participated in by officials of France, Panama and Colombia. But within a very short time, owing to the magnitude of the scale of operations, coupled with wasteful business methods, the first fund of \$120,000,000 was expended.

The company put out a second issue of stock which they offered to the people of France as the first issue had been offered. This second issue was taken up as the first had been, but with some suspicion on the part of the buyers. The second issue sold at a considerable discount; still they found purchasers, and again the coffers of the company were supplied with cash.

But the wastefulness and extravagance of the company continuing, the proceeds from the second issue of stock were soon exhausted and a third issue was offered. The sale of the third issue was made with a great deal of difficulty, and premiums were given to prominent men of influence or authority, or any line of business, providing they would use that influence in the marketing of the company's shares. So flagrant did these irregularities become that they culminated in criminal prosecutions.

The sum total of the capital stock subscribed to by the buyers of the French Panama Company's shares was \$393,505,100. This great volume of stock sold to the purchasers produced for the company only \$201,546,740, the difference of \$191,958,360 being lost in discounts and premiums paid in marketing the stock.

Wastefulness of the French Company

This appalling exhibition of criminal wastefulness and unlawful business methods caused the utter collapse of confidence in the success of the enterprise, not only of the in-

vesting public of France, but of the world as well, and hastened the time when such methods must reach their logical conclusion in bankruptcy. The old timers on the Isthmus will tell the inquirer that of the enormous sum of money raised by the French Canal Company, one-third was wasted, one-third grafted and one third probably used in actual work.

It seemed as if anyone who had any sort of influence might sell that influence to the Panama company for some kind of a consideration. On the Isthmus today they will show you a storehouse containing about half a ship's cargo of snow shovels which a manufacturing company in France succeeded in selling to the French Panama Company, no doubt in return for the influence they might be able to give in assisting in the sale of the French Panama Company's stocks. Of course, one can easily see the ridiculous side of the purchase of half a cargo of snow shovels to be used in the tropics.

Practical bankruptcy came in the year 1889, and from that time on the French Canal Company simply held its franchise and concessions from the Republic of Colombia for speculative purposes only. Then the officers of the French company, seeing that the United States Congress was beginning to take a lively interest in canal construction, and was showing signs of a disposition to pass legislation that would commit the United States as a Nation to the building of a canal, began to look toward the United States as a prospective customer for their uncompleted canal project at Panama. In the meantime the Nicaraguan company had gone upon the rocks of bankruptcy, and they, too, were offering their concessions and franchises to the American Government. And so with these two propositions before

Congress, time drifted on to the opening of the war between our country and Spain.

When the Spanish war was declared, it was reported in the United States that a Spanish fleet was cruising in Asiatic waters. Of course, it was not known how strong that fleet might be. There was no way of knowing whether or not it would be able to cross the Pacific and take San Francisco or some of the other cities or ports of the western coast of the United States. So the Secretary of the Navy ordered the crack battleship of the navy, the "Oregon," to maintain her station in San Francisco Bay with steam up, prepared to go into action at any moment.

Significance of the "Oregon's" Course

Everyone who lived around the Bay of San Francisco in those days remembers what relief the news in the papers brought on a bright May morning that Admiral Dewey, in response to an order from Secretary J. D. Long had proceeded to Manila and destroyed the Spanish fleet. This meant there was no longer any danger of the bombardment of San Francisco.

There was no longer any necessity for holding the "Oregon" in Pacific waters, and so quickly followed the order from the Secretary of the Navy that she should at once take her departure to the coasts of Cuba and join the American squadron operating there. The citizens of San Francisco swarmed the hilltops to see the departure of their favorite battleship. She sailed majestically out through the Golden Gate and turned her prow southward. The patriotic hearts of the men and women of California followed her course as they read each morning in the newspapers the description of her successful voyage down the western



THE CULEBRA CUT, LOOKING NORTH.

coasts of Mexico and Central America, on past Panama and along the coasts of South America, through the Straits of Magellan, then to the northward to her station on the coast of Cuba. But they noted that this voyage consumed sixty-five days of time.

Then the President, the American Congress, and the American people awoke to the fact that if the safety of the cities of the seaboard of the Atlantic and the Pacific depended upon naval protection, and that if such a long voyage would have to be taken by ships stationed upon the opposite coast, it might mean the destruction of incalculable wealth.

The entire Nation began to realize that if the "Oregon" could have sailed from San Francisco to Panama and passed through the isthmus by means of a canal such as we are now constructing, she could have made the voyage from San Francisco to the coasts of Cuba, consuming three days at Colon or Panama to take on stores and ammunition, and still could have been at her station on the coasts of Cuba in sixteen days' time. The people of the country began to realize that the difference between sixteen and sixty-five days might mean the safety of the Nation, and especially so if we were at war with a maritime power such as Great Britain, Germany and Japan.

This startling demonstration of the absolute necessity for a Panama Canal from the standpoint of American national safety, at once swept aside all opposition at Washington to canal construction. Immediately a universal wave of sentiment in favor of a national American Isthmian Canal swept over the land and found its expression in instructions by every constituency in the Union to Congressmen and to Senators to do all in their power to assist in bringing canal legislation to a successful termination.

The Canal Commission

Immediately thereafter President William McKinley was authorized by Congress to send a commission to Panama and Nicaragua to examine those two routes and to receive offers from the different companies as to the amounts the different projects could be purchased for.

The result of the investigations of the commission was that the Panamanian Company offered their uncompleted canal, their franchises, their plans and specifications, the Panama Railroad, which was worth about \$12,000,000, and a line of steamships from Colon to New York, consisting of five medium-sized steel vessels of modern construction, for the sum of \$110,000,000. The Nicaraguan Company offered their concessions from Costa Rica and Nicaragua, in addition to all their other property, for \$6,000,000. They simply desired to be reimbursed for the amounts spent in securing their concessions and making their preliminary surveys.

After careful consideration the commission recommended the purchase of the Nicaraguan proposition. It was at this critical state of the negotiations that President McKinley was removed by the bloody hand of the assassin, and as a result Vice-President Roosevelt took his place as the head of the American Government. President Roosevelt decided on the Nicaraguan proposition; but before the matter was closed the French Panama Company came fully to the realization that if the United States purchased the concessions of the Maritime Canal Company and began the construction of a canal through the Nicaraguan territory, without any question that project would be completed in a reasonably short space of time, as it would have the power of the entire American Government behind it.



BONEYARD OF THE OLD FRENCH MACHINERY.

They also realized that if the Nicaragua Canal was constructed it would probably make their holdings in Panama of far less value; and as they were practically bankrupt then, they begged an opportunity to submit a lower price for their property. This opportunity was granted, and the result was that the French company offered their franchises and holdings, including the railroad and the steamship line, for the sum of \$40,000,000.

This amount was so much lower than the amount originally demanded that it caused a reconsideration by the President and Congress, which terminated in the decision of the President and Congress to purchase the rights and the property of the French Company.

The next step was to ascertain whether or not the French company could convey a valid title to the United States, and Attorney-General Knox was instructed to go to France and consult with the proper French authorities and determine if such a legal conveyance could be made. As a result of his investigations, General Knox on October 30, 1902, decided that the French company could convey an absolute title to the American Government.

A great nation such as the United States could not contemplate becoming the tenant of any other country under the sun, much less a feeble republic of Central America. The dignity of the United States required absolute sovereignty over any territory through which the American Nation might decide to construct an isthmian canal. Absolute sovereignty over an isthmian canal, however, on the part of the United States had been waived by the terms of the Clayton-Bulwer treaty entered into with Great Britain a half century before. The terms of this treaty provided that in case either nation should construct an isthmian canal, such canal should not be fortified nor controlled by

either power; and that should any other nation construct an isthmian canal, the United States and Great Britain should join in preserving its neutrality.

Before the United States could exercise absolute sovereignty over any strip of territory across the isthmus, the Clayton-Bulwer treaty would have to be abrogated, and to accomplish this Secretary of State Hay entered into negotiations with Great Britain. He found the representatives of that country very willing to meet every reasonable demand. After a short series of negotiations he succeeded in having passed and ratified by both countries the Hay-Pauncefote treaty. Under the terms of this treaty Great Britain waived all claims to sovereignty and control over an Isthmian Canal, and substantially agreed to the jurisdiction and control of the United States over any canal that might be constructed by that country.

Acquirement of the Canal Zone

When this obstacle was removed the next step was to secure a canal zone, and the United States entered into negotiations with the Government of Colombia with that end in view. The result of the negotiations was that an agreement was reached by which the Republic of Colombia agreed to convey to the United States a strip of land thirty miles wide and extending a marine league into the waters on either side of the isthmus. The terms of the treaty were that the United States, in consideration of the zone proposed to be transferred, should pay to the Republic of Colombia ten million dollars in cash on the ratification of the treaty by the separate governments, and commencing nine years from the date of ratification, the sum of one hundred thousand dollars a year for all time.

This tentative treaty found great favor in Washington, D. C., and was immediately ratified by the American Senate, and then sent back to Bogota for ratification by the Colombian authorities. But much to the astonishment and chagrin of the people of the United States, and to the extreme disappointment of the people and the authorities of Panama, this so-called Hay-Herran treaty was refused ratification by the Colombian Senate.

The refusal of this ratification ultimately led to the secession of Panama from its allegiance to the Republic of Colombia and the acquirement of independence.

While on the Canal Zone in 1907 on an official visit I came into close contact with the officials of Panama, particularly President Amador, the first President of the Panama Republic, and General Arrias, who held the combined offices of Secretary of State and War for the new republic.

At a dinner given by the American Minister, being placed beside General Arrias, I took occasion to inquire of him the reasons why the Hay-Herran treaty was refused ratification by the Senate of Colombia, after it had been tentatively agreed to by the Colombian authorities.

General Arrias' explanation was to the effect that there were four reasons why the Hay-Herran treaty was refused ratification on its return to the Colombian Senate. The first was that the German influence was strong in Colombia, and the German merchants and diplomats were very much opposed to the extension of American influence down the west coast of South America, particularly in the Colombian Republic. The German merchants, seeing the collapse of the French Canal Company near at hand, hoped that a German company might purchase the wreck of the French enterprise and carry the canal to completion, realizing that

this course would mean much in the way of German aggrandizement.

The second influence, according to General Arrias, was that of the old transcontinental railroad management of the United States. Popular demand for an isthmian canal having swept away all obstruction at Washington, D. C., the scene of operations was shifted to Bogata, and railroad influence and railroad money were probably used to induce some of the Senators to refuse to vote for the ratification of the treaty.

The third influence was that of patriotism. Some of the Colombian Senators were opposed to a transfer of any portion of Colombian soil to a foreign power, more especially as the Colombian constitution contained a clause making it treason for any Colombian subject to become a party to the alienation of any part of Colombian territory to another country.

The fourth and the most potent influence was the fact that the French Panama Canal Company had failed in every respect to keep the terms of their contract with the Colombian Government. Not only had they failed to complete the canal at the time specified in their franchise, but having obtained an extension of that time, had failed to observe the terms by which the extension had been secured.

Therefore the Colombian Government might very properly proceed to a forfeiture, which could be obtained through due process of law in something less than ten months' time.

Many of the Colombian Senators took the position that it would be lawful and more expedient to declare a forfeiture upon the French company, and take over the canal under the terms of such forfeiture as provided by the franchise. The Republic of Colombia would then be in a position to sell the same to the American Government for forty



GATUN MIDDLE LOCK, LOOKING SOUTH FROM EAST BANK.

million dollars, and since then they would secure ten million dollars for a zone and a perpetual rental of a large sum annually, the financial condition of the country would be very much improved. As the finances of the Republic of Colombia were at that time in a desperately depleted condition, this prospect of their rehabilitation must have had powerful effect with many of the Senators.

These four reasons operating, no doubt caused the Colombian Senate to refuse ratification to the Hay-Herran treaty.

But in Panama the people and the authorities were determined not to submit to the action of the Colombian Senate. The Panamanians were aware of the fact that the President of the United States had been authorized by Congress to make a choice between either the French Panama or the Nicaraguan route, and that under that authority he would at once proceed to close a contract with the Maritime Canal Company of Nicaragua if he could not secure a canal zone. They also realized that if once the American Government began the work of excavating a canal through Nicaraguan and Costa Rican territory, in all human probability, the French Panama Company's project would be abandoned.

Thus the cities of Colon and Panama, and the territory surrounding, would be relegated to obscurity so far as world's trade was concerned, for many years. This the Panamanians were determined to prevent if possible, so they took every step necessary to inaugurate and successfully carry out a revolution in case of the refusal of the Colombian Government to ratify the Hay-Herran treaty. They sent Dr. Varilla as their representative to New York and instructed him to remain in close touch with the cable, and should he receive a cablegram that Panama had thrown

off her allegiance to Colombia and had resumed her old-time independence, he should proceed at once to Washington, D. C., notify President Roosevelt of the fact, demand recognition of the new République of Panama as an independent power, and enter at once into negotiations with the United States for the recognition of that independence and the transfer of a canal zone.

The New Republic of Panama

This program was carried out later on. The Panamanians had very little trouble in overawing the few Colombian officers within their territory. They knew that the Colombian Government had no navy, from the fact that a year before the Colombian navy had been sent to the City of Panama to coerce the authorities there who were disputing with the Colombian Government over some items of revenue which were an issue; and meeting force with force the authorities of the City of Panama had succeeded, with the assistance of a small tug-boat and one piece of cannon, in sweeping the seas of the entire Colombian naval power, and as evidence of their success the two masts of the Colombian navy were sticking up out of the mud-banks of Panama Bay.

Nor were the inhabitants of Panama or Colon much concerned as to a possible attack from a Colombian army. That would entail a long march of hundreds of miles through morass and jungle, and could not be successfully accomplished in less than a year's time. And so the Panamanians were free to act in their purposes of securing independence without danger of very much interference from the home government.

The result of the revolution was very gratifying to the

Panamanians. As soon as they learned that the treaty had been refused ratification, they immediately wired to Dr. Varilla at New York. He apparently was at his post waiting the news, for it was whispered in Washington that he took the night train from New York, reached Washington in the morning, and arrived at the White House early in the forenoon. And from all indications President Roosevelt must have been waiting just inside the door to receive him, for it is said that the President was on hand to grasp Dr. Varilla by the hand and welcome him to the White House, and that when he came out two hours later, Panama was virtually recognized as an independent government. Within a few days a treaty was negotiated between Panama and the United States.

Terms of the Treaty

This treaty, called the Hay-Varilla treaty, was ratified in December, 1903. Its terms provided that the sum of ten millions of dollars, be paid by the United States to the Government of Panama, and the further sum of two hundred and fifty thousand dollars a year for all time, commencing nine years after the ratification of the treaty by both countries. The Republic of the United States was to have absolute title and sovereignty to a strip of land ten miles wide, five miles on either side of the center of the canal prism, extending from Colon to Panama, and three miles out into the water on either side, but without including either of the cities of Colon or Panama within its area.

This treaty further provided that the United States should guarantee the independence of the Panamanian Republic, the terms being most explicit that the United States should protect the Panamanian Government from insurrection within and invasion from without. This little joker

in the treaty between the United States and Panama makes that little republic the strongest of all the republics on the American continent next to our own. In fact, the Republic of Panama is as strong as the United States, and will be so as long as the American flag floats in sovereignty over a foot of American soil.

The treaty also provided that the United States should have the privilege of sanitizing the cities of Panama and Colon, and that the cost of the same should be a charge against the Government of Panama.

When all obstacles to the acquirement of the zone were removed under the Hay-Varilla treaty, the next step on the part of the American Republic was to begin the most important work of sanitization.

Sanitization of the Canal Zone

The sanitization of the Canal Zone and the cities of Colon and Panama is one of the most interesting features of the history of the Panama Canal. The want of proper sanitation was, no doubt, very largely the cause of the French failure.

The French authorities, either not understanding the significance of maintaining the health of the great mass of employees engaged in their work, or being criminally negligent of the lives and the health of their employees, failed to take the necessary measures for the protection of life and health. Their laborers were allowed to live in a haphazard way. The negroes were permitted to furnish their own food and to sleep where they pleased.

The consequence was that the ignorant and the improvident ate food that was not properly prepared, and slept very often in tents or on the ground, subject to the night dews and miasmatic vapors of the tropics. Diseases of the most



THE EFFECT OF A BLAST ALONG THE CULEBRA CUT.
Upper Picture—Before; Lower—After a Blast.

virulent nature broke out in every camp, and yellow fever became especially active in carrying off its victims.

So with this dreadful experience as an example and a warning, the American authorities realized that the first work of importance was that of subduing the unhealthful conditions of the Canal Zone so that labor might be engaged in with reasonable safety by the tens of thousands of employees who would be placed upon the line of operations of the canal when work was actively commenced.

Fortunately, surgeons of the American army had gained a great deal of experience during the Cuban campaign, and one army surgeon had achieved particular prominence in his handling of tropical diseases. Dr. W. C. Gorgas, who had campaigned in Cuba and assisted General Leonard Wood in the cleaning up and sanitization of Santiago and Havana, was peculiarly fitted for the important work of establishing healthful conditions on the Zone.

Dr. Gorgas had also had the advantage of being a collaborator as well as a fellow officer of Dr. Reed in Cuba. Dr. Reed was one of the first army surgeons to become familiar with the theory that the yellow fever and the malarial fevers of the tropics were carried and distributed through the agency of mosquitoes. In fact, Dr. Reed himself became a victim to his desire for scientific knowledge, he having allowed himself to be bitten by a mosquito that had first filled itself with the virus of a yellow fever patient, and died as the result of the experiment.

War on the Mosquito

Dr. Gorgas carried on the work of the investigation and development of the mosquito theory after the death of Dr. Reed, and became a recognized world-wide authority on the

science of tropical diseases and sanitation, when he was chosen as the officer to whom the sanitization of the Zone should be entrusted. He was given ample funds by the American Government and furnished with a force of men numbering more than 2000, his theory being that by the destruction of the breeding places of mosquitos he could finally eliminate the mosquitoes themselves.

In carrying out his plan the vegetation on either side of the canal for half a mile was cut down and burned, the dead trees destroyed, the low marshy places drained where possible; and where it was impossible to successfully drain the ground and water pools they were covered with a petroleum mixture. In fact, petroleum was found to be so effective that it came to be the favorite means of destroying the mosquitoes, and one approaching Colon today, if the wind is in the right quarter, may catch the odor of that ingredient one hundred miles at sea.

It was found after investigation by Dr. Gorgas that the mosquito, called the stegomya, was peculiarly partial to the yellow fever victim, and that after biting a yellow fever patient and becoming inoculated with the poison, the stegomya became very active in its distribution to other subjects. A mosquito called the anophyles, by some peculiar freak of nature, had a like attraction for the victims of malarial diseases.

And so, between the two kinds of mosquitoes there seemed to be a rivalry as to which could do the most damage. But fortunately neither one of these pestiferous insects could fly over a quarter of a mile, and so the theory of Dr. Gorgas was that by destroying their breeding places and eliminating them from the Canal Zone, he might preserve the health of the workers.

Colon was overhauled by repaving the streets after first

saturation of the ground with petroleum, bringing in fresh water and constructing sewers. In fact, all the measures that were necessary to establish healthful conditions were used.

The same course of treatment was given the City of Panama, much to the disgust of many of the Panamanian residents, who had been using water from wells and cisterns that had been dug two centuries before, when Panama was founded.

A splendid system of hospitals was built up by rehabilitation of the hospital system left by the French company and the addition of others. Thousands of cabins were built for the common laborers, the so-called "silver men," and better cottages for white men who might take their families with them to the Zone while engaged in labor there. Dormitories for single white men were built at every construction point. Restaurants were established at which a meal of four courses was furnished the superior class of white employees at 35 cents. Provision was made for the issuance of cooked rations at a price of 10 cents per ration to the "silver men," who are nearly all negroes, it being the policy of the commission to protect the life and health of every employee of the Zone, so that the health of the individual would become a guarantee of the safety of the whole body of working men.

The Present Low Death Rate

Time and experience have conclusively shown Colonel Gorgas' theories to have been correct, and the gratifying result is that because of the wonderful precautions taken and the very effective work done in scientific sanitization since the commencement of operations under Colonel Gorgas tropical diseases have almost been eliminated on the Zone. As a matter of fact, there has not been a case of yellow

fever on the Canal Zone since June, 1906, and the malarial fevers have been reduced to a minimum. The Canal Zone has now a lower death rate than most American cities, and has almost become a health resort. In the opinion of some of the most eminent authorities, the most effective work entering into the entire construction of the canal is the work of sanitization so successfully accomplished by Colonel Gorgas and his able assistants.

While the work of sanitization was under way, the President of the United States was taking counsel with a board of engineers as to the type of canal that should be constructed. As usual in all such matters, the authorities were about equally divided, half of the engineers being strongly in favor of a sea-level canal, and the other half advocating what was called a lock canal.

The Two Types of Canal

The difference between the two types of canal is this: A sea-level canal contemplated an excavation from shore to shore at the level of the sea; a lock canal contemplated the construction of a great dam across the valley of the Chagres and the course of the Chagres river, which dam would have the effect of holding the waters of the Chagres river. The accumulation of those waters in time would form a lake, the surface of which lake, of course, would be considerably above the level of the sea on either side. The dam would necessarily have to be surmounted through the agency of locks.

After much controversy and bickering, and a great deal of muck-raking by the newspapers and magazines of the United States and Europe, the plan of a lock canal was finally adopted. This plan contemplated the impoundment of the waters of the Chagres river by a dam constructed at



AT WORK IN THE CULEBRA CUT.

Gatun, a little village about three and one-half miles inland from the shore of Limon bay. This dam when finished would be 7700 feet in length, half a mile in width at the base, and 135 feet in height. It was designed that this dam should hold the waters of the lake at a height of 85 feet above sea-level, but it was constructed 50 feet higher so that all danger might be obviated in case of excessive floods.

The plan of the canal contemplated that this dam should be surmounted by three locks constructed in pairs, so that in case one series of locks became impaired the other could be used, or ships might pass up one side and down the other at the same time. Each of the locks was to be 1000 feet long, 110 feet wide, and have a lifting capacity of $28\frac{1}{2}$ feet. Therefore, when completed, this series of locks constructed of concrete would be more than 3000 feet in length and about 250 feet in width, without doubt the largest concrete formation ever constructed.

The engineers of the Panama Commission give four reasons for the adoption of the lock system instead of the sea-level type. In the first place, it would take twice as long to construct a sea-level canal as it would a lock canal. Secondly, it would cost twice as much money, and as the lock canal system is costing nearly four hundred millions of dollars, the difference in cost would be a great obstacle to the construction to the other type of canal. The third reason was that in case a sea-level canal was constructed it would be necessary to place locks somewhere along its course because of the fact of the variation of tides between the Atlantic and the Pacific Oceans.

The tide rises and falls at Colon, on the Atlantic side, about $3\frac{1}{2}$ feet, at the time of extreme high tide; while on the Pacific side the tides rise and fall $27\frac{1}{2}$ feet, and this

great variation would cause a current to rush through the course of the canal so great that locks would be required for its control.

But the fourth was the most potent reason of all why the lock system was adopted. On the Isthmus of Panama the rainfall amounts to 130 to 150 inches annually. Sometimes the precipitation will amount to 10 or 12 inches in twenty-four hours. The Chagres river is the only agency for the drainage of a vast area of water-shed in the Caribbean sea. Therefore, at times the Chagres river might be a small, inconsequential stream that a boy could wade across, and yet before twenty-four hours had elapsed, because of a heavy rainfall, it might have swelled into a raging torrent that would wreck the strongest battleship of the American navy. The large volume of water discharged by the Chagres river could not be turned into the canal proper, as the currents and the rush of flood waters would soon impair the banks of the canal.

The Lock System Adopted

Therefore it would be necessary, under the sea-level type of canal, to construct a series of embankments and dams that would be far more expensive to build and keep in repair than would be one great dam over the course of the Chagres river. Besides, the safety of the lock system would be much greater than that of the sea-level type. These were the reasons which finally controlled the determination of the engineers to construct a lock system of canal.

After the type of canal was decided upon, the next step was the assemblage of the force of laborers and the mechanical appliances necessary for the physical operations.

In order to carry out this scheme, a commission was originally appointed, composed half of civilians and half of military officers. The first engineers were selected as being the most eminent of their profession, and taken from civil employment.

But great difficulties were encountered in perfecting the proper kind of an organization to successfully complete this stupendous project. The engineers taken from private life and entrusted with the work, after a little experience on the Isthmus, would be offered greater inducements to abandon their Governmental employment and take some other position, generally far more lucrative, in the United States. And so, either through accident or design, the Canal Commission lost the services of such men as Wallace, Stevens, Shonts, Grunsky, and other noted engineers, and again it seemed as if canal operations would be badly crippled for want of the right kind of men to direct the work.

Army Engineers Installed

This tendency of the civil engineers to leave their employment caused much concern to the President and Congress, and finally President Roosevelt, with his characteristic acumen, decided that he would place the work of canal construction under the army engineers entirely. So, at his suggestion, Congress reframed the law of the Canal Commission, and President Roosevelt remarked that under the new law he would put army engineers on the job, and that they would either stay there until it was done or get out of the army.

Experience has proved that President Roosevelt's judgment was correct, for the work has gone on since the reorganization of the commission with the regularity of a

machine. There has hardly been a stop or a break at any point along the line of operations. Colonel G. W. Goethals, one of the most successful of the army engineers, was placed at the head of the Canal Commission and given full charge, and his work has been so successful that he has demonstrated his ability to command and to control the operations placed in his charge to the satisfaction of the great powers that gave him his commission.

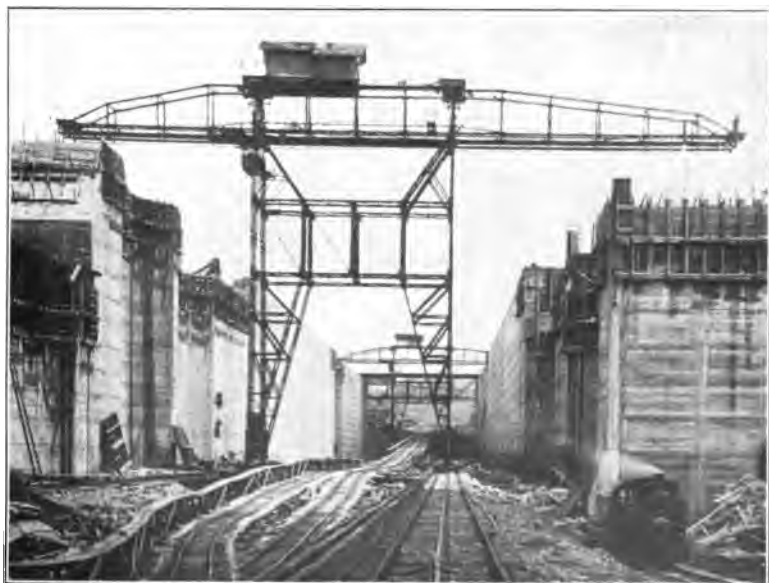
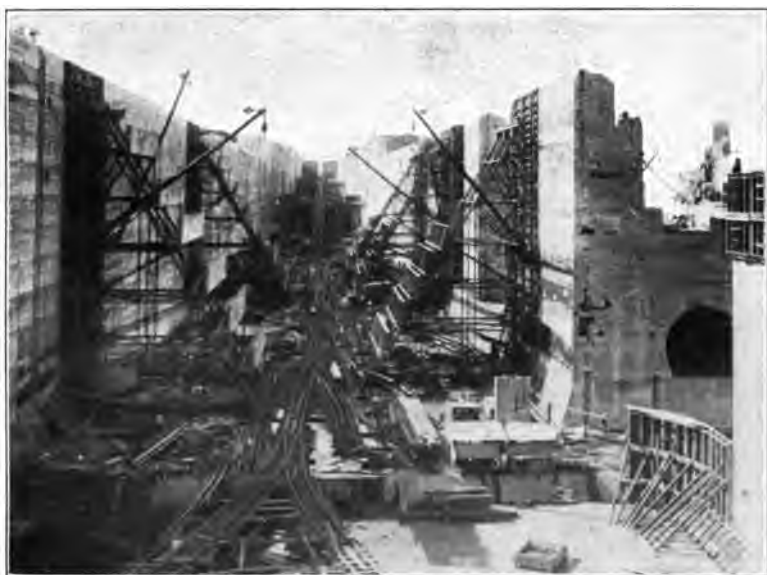
His first step upon being placed in control was to provide the means of feeding and caring for an army of from 25,000 to 40,000 men. A bake shop was built at Cristobal, out of which 30,000 loaves of bread are turned twice a day if necessary, and a batch of pies and cakes in proportion. Storage warehouses have been built for the storage of meats and vegetables and various other supplies that are brought from the north by shiploads. Ice plants have been constructed so that ice may be distributed up and down the line of operations. Every morning at 3 o'clock a supply train leaves Colon, and furnishes every camp along the line of the canal with fresh supplies for the day's consumption.

Thus, under army supervision the employees of the Canal Zone are as well supplied with rations and materials as they would be on an army reservation.

Following these necessary preparations for handling the big force of men, came the assemblage of the machinery and the mechanical implements necessary to perform the work. Without going into exhaustive details, it is only necessary to say that the very best materials, implements and machinery that money could supply, brought from all parts of the world, were sent to Panama.

Old French Machinery

One of the most interesting things the traveler upon the



Upper Picture—Gatun Lower Locks
Lower Picture—Huge Traveling Crane Used in Construction Work.

Isthmus will see is the mass of discarded French machinery piled all along the line of operations. No doubt the French used the best machinery that could be obtained at that time, but that was thirty years ago, and the progress of the world, particularly in the use of labor-saving machinery, is nowhere more thoroughly demonstrated than on the Isthmus of Panama by a comparison of the old French machinery with that assembled by the American engineers. There are piles of French locomotives that today are absolutely worthless, not because the machinery itself is defective, but because of their feeble power. At the town of Empire there are forty-five French engines piled in one heap that cannot be used by the Canal Commission. In fact, they are of such little power that they would hardly be used by a street contractor on a city job in the United States.

In direct contrast to these are the splendid engines sent to the Isthmus by the commission—200 locomotives, not of the largest, but about of the medium size one sees on the American railways; 2000 splendidly constructed steel dump cars for the hauling of rock and debris; 300 air-compressed drills for boring into the rocks in blasting operations; 125 steam shovels of 75, 90 and 125 tons capacity; apparatus and machinery for the moving of railroad tracks, so effective that a railroad track can be slung 10 or 12 feet to one side or the other, laid down and spiked almost as fast as a man can walk; great steel plows that are pulled across strings of gravel cars, plowing the gravel or debris off the cars on one side so rapidly that a long train of 25 or 30 cars can be unloaded in a few minutes. The stationary machinery is of the best quality that genius and money can construct, and so effective have been these means of labor saving that the work has been accelerated from time

to time until it is now a realized fact that the canal will be actually constructed a year and a half ahead of time.

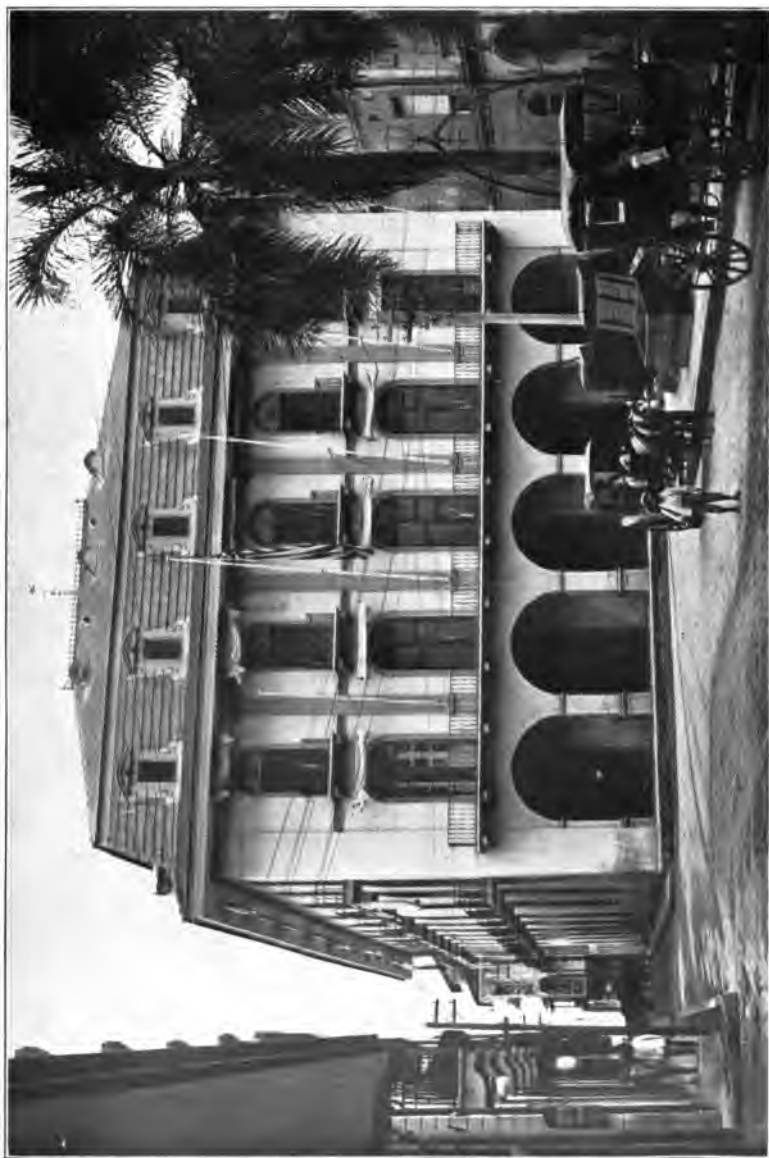
When the Canal Commission first began their work after the completion and the adoption of their plans, it was estimated that 110,000,000 cubic yards of debris must be excavated from the canal prism. This debris must be taken and deposited at some place so remote that it could never wash back into the canal by the rains and floods. The debris taken from the cuts on the high lands could not be used in the structure of the Gatun dam, as it would be too liable to percolation.

The Gatun Dam

The Gatun dam is being constructed by hydraulic process through the instrumentality of suction pumps, which suck up the slime and the debris from the course of the Chagres river and the swamps and morass through which the canal is being constructed. This debris and this water are sucked up and allowed to run along the center of the dam, the water running off and the solid matter congealing there, and by this hydraulic process that great structure will be formed.

The traveler upon the Isthmus today, if standing upon an eminence overlooking the cut through Culebra hill, would imagine himself on a height overlooking an industrial city like Pittsburg. There are scenes of such immense activity on every side that he forgets he is in a remote part of the world far from his home, and that he is actually standing upon an eminence in the tropics.

The development of labor-saving machinery has been so marked since the construction of the canal was actually commenced that each month's work has marked an in-



CANAL ADMINISTRATION BUILDING, PANAMA.

crease in the amount of debris excavated from the canal prism. When the Government began operations in 1906, the engineers had before them the task of excavating 110,000,000 cubic yards. Their first month's operations were very successful, and they reported at the end of the month an excavation of about 250,000 cubic yards. They estimated that if they could keep up this amount of work through each month they could finish the canal at a certain time; but the carping yellow newspapers and magazines of the United States and Europe were extremely skeptical of the ability of the Canal Commission to continue to turn out 250,000 cubic yards per month. The critics foretold that when the rainy season came more debris would be carried into the canal prism by floods than could be taken out by machinery in the dry season. At times this criticism grew very irksome and disagreeable to the commissioners. However, they kept their temper, and continued improving their machinery, and month by month the output grew greatly. It grew to such an enormous extent that the estimated time has been shortened to the extent that I have formerly indicated.

The Work of Excavation

To give a comparison by the use of figures of the remarkable progress made, I will say that about six months ago I took up the report of the Canal Commission and I found that in the previous month the amount of debris excavated for that one month exceeded 4,000,000 of cubic yards, this tremendous output being a complete answer to the criticisms of the opponents of canal construction.

In order to give a mental picture of the type of canal, let us take an imaginary trip through the canal proper. It

will be forty-two miles from shore to shore. In addition to this there will be an excavation out in Limon bay on the eastern side, and in Panama bay on the western side, of about four miles on either side, in order to reach deep water.

Supposing that we are sailing down through Limon bay, which is a small bay at the bottom of the Caribbean sea, on one of our American battleships. We first enter the canal which leads from the bay up into the shore toward Gatun dam, and this section of the canal will be 500 feet wide and 40 feet deep at low water level. This channel penetrates through the mud banks and land about four miles, when it encounters Gatun dam. Gatun dam must be surmounted through the agency of locks, which have been previously described.

Operation of the Locks

Our vessel then sails into the first, or the lower, of the locks. The steel doors are closed and locked, and water from the chamber above is let down by means of pipes and valves which discharge underneath the vessel. This water flowing into the lower chamber, raises our vessel $28\frac{1}{2}$ feet to the level of the second lock. Our ship sails into the second lock, the doors are closed behind and locked, the water let down from above, and again our vessel is raised $28\frac{1}{2}$ feet. And so the process is repeated the third time, until our ship sails out upon the lake which is formed by the impounding of the waters of Gatun dam.

This lake, when filled to its capacity, will be thirty-three miles long between extreme points, and eight miles wide at the widest part. The course of a vessel from this lake will be twenty-three miles to a place called Bas

Obispo. This is the point at which the canal begins to run through the hill called Culebra, and therefore the cut is called the Culebra cut, and is nine miles long. The canal through this portion of its course will be 250 feet wide at the bottom, and the sides of the canal will slope so gradually that at the highest point of Culebra hill, which is 325 feet above sea level, the width will be about one-half mile.

Our vessel passes through this nine-mile course to Pedro Miguel. At Pedro Miguel there will be a pair of locks 1000 feet long, 110 feet wide, and with a drop or lifting area of 35 feet, instead of 28 feet. Through this lock our vessel will be lowered to a small lake formed by the damming of two small streams in the vicinity of the City of Panama. This lake will be a couple of miles across, and on the farther point, called Miraflores, two pairs of locks will lower our vessel to the level of the Pacific Ocean. From the Miraflores locks a channel will be constructed out into Panama bay—500 feet wide and 40 feet deep at low tide, the same as on the Caribbean side.

The engineering features of the Panama Canal are not intricate, and not in any sense difficult from an engineering standpoint, save for the great magnitude. It is the size of the enterprise that has appalled, and discouraged the canal's construction, and not the technical difficulties of the work required.

The Future of the Canal

When the Panama Canal is completed the commerce and trade of the world will be revolutionized. San Francisco will be brought nearly 9000 miles closer to New York than it is today and European ports nearly 6000 miles closer. It is estimated by statisticians skilled in transporta-

tion and in carrier service, that the cost of transporting the great mass of bulky products from the Pacific Coast to Eastern seabords of the United States and to European points will be reduced nearly two-thirds. In other words, freights that now cost approximately \$1.00 per 100 pounds over the transcontinental railroads from Pacific Coast ports to Eastern markets, may be carried through the canal for about 33 1/3 cents.

It is estimated that this saving of freight on timber alone, which is still standing in California, would pay the cost of the canal, great as it is, three times over. We can hardly estimate the effect that this shortening of water rates will have on all the countries fronting the Pacific Ocean.

It would seem as if the Western hemisphere was at last coming into its own in dignity and progress, in its relation to all the world. Certainly the tides of people of enterprise and of business have been steadily pressing westward since long before Bishop Berkeley declared that "Westward the star of empire takes its way," and that Western wave is rushing onward today more strongly and steadily than ever before in the world's history. Men of even middle age today probably will live to see the fulfillment of the dreams and prophecies of the olden time in the opening up of our coasts and land to ship commerce with every country on the globe.

In ancient days it was the fact that seas divided nations, because of the difficulty of ocean travel. In those days the only safe routes were those over the land, but in this modern time of gigantic ocean vessels, capable of carrying thousands of passengers and hundreds of thousands of tons of freight, water travel and transportation is the cheapest and most agreeable of all forms. And therefore, today it

UNIV. OF
CALIFORNIA

TO VINU
ANOTUO



PRESIDENT TAFT SIGNING JOINT RESOLUTION DESIGNATING SAN FRANCISCO AS THE PLACE TO
HOLD THE WORLD'S FAIR IN 1915.

is a fact that seas unite the countries of the world instead of dividing them.

The completion of the Panama Canal will be only the completion of one link of the chain of three great improvements that are in contemplation by the statesmen of America.

On the eastern side of the continent all the States bordering on, or tributary to, the Mississippi river are engaged in the propaganda for the deepening of that river to a depth of 14 feet from New Orleans to St. Louis, and 12 feet from St. Louis to St. Paul, as well as the improvement of the tributaries thereof, so that ocean-going vessels may penetrate to the very heart of the American continent and discharge their cargoes there.

The up-to-date and progressive city of Chicago, the mighty metropolis of the center of the continent, is alive to the possibilities of the near future, and has made provision for the issuance and sale of bonds to the amount of \$24,000,000, the proceeds of which are to be used in the deepening and widening of the Chicago drainage canal and the Illinois river, so that ocean-going vessels may not only penetrate as far as St. Louis, but may also proceed to Chicago, and place that great city in direct water communication with any part of the world.

The improvement of the Mississippi and its tributaries, then, is one of the links of the chain. The Panama Canal is the central link. The third link must be and will be, if the projects of the most eminent and patriotic American statesmen are carried out, the re-establishment of the American merchant marine, so that American ships may be used as the agency for the distribution of the products of our great industrial country to all the lands fronting the Pacific Ocean, as well as to all other parts of the earth.

I believe that it has been a well recognized policy of all the Presidents and statesmen of our country for the last twenty years to urge the accomplishment of these improvements. They come slowly, of course, but all large projects take time in their development, and those of us who today are so fortunate as to live in California, or anywhere upon the Pacific Coast, may easily look forward to the time, not far distant, when California will be at least the second State of the American Republic in wealth, and industrial and commercial power, and San Francisco the second city in importance under the American flag.

**THIS BOOK IS DUE ON THE LAST DATE
STAMPED BELOW**

**AN INITIAL FINE OF 25 CENTS
WILL BE ASSESSED FOR FAILURE TO RETURN
THIS BOOK ON THE DATE DUE. THE PENALTY
WILL INCREASE TO 50 CENTS ON THE FOURTH
DAY AND TO \$1.00 ON THE SEVENTH DAY
OVERDUE.**

JUN 10 1933

MAR 8 1935

3/23/35
APR 10 1935

3/23/35

REC'D LD
NOV 3'63-3 PM

271080

McKinlay

F1569

C2M2

UNIVERSITY OF CALIFORNIA LIBRARY

